

REMARKS

The present Amendment is in response to the Office Action mailed December 10, 2008. Claims 3-9 and 14-20 were previously withdrawn, claims 1, 10-12, and 21-22 are amended¹. Claims 1-2, 10-13, and 21-22 are currently pending in view of the above amendments and remarks herein. Applicants note that the following remarks are not intended to be an exhaustive enumeration of the distinctions between any cited references and the claimed invention. Rather, the distinctions identified and discussed below are presented solely by way of example to illustrate some of the differences between the claimed invention and the cited references. Applicants also note that the remarks presented herein have been made merely to clarify the claimed embodiments from elements purported by the Examiner to be taught by the cited reference. Such remarks, or a lack of remarks, are not intended to constitute, and should not be construed as, an acquiescence, on the part of the Applicants: as to the purported teachings or prior art status of the cited references; as to the characterization of the cited references advanced by the Examiner; or as to any other assertions, allegations or characterizations made by the Examiner at any time in this case. Applicants reserve the right to challenge the purported teaching and prior art status of the cited references at any appropriate time. Reconsideration of the application is respectfully requested in view of the above amendments to the claims and the following remarks.

Rejection Under 35 U.S.C. § 103

The Office Action rejected claims 1, 11-12 and 22 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,160,380 (*Tsuji*) in view of U.S. Publication No. 2004/0239333 (*Kikuchi*).

Claims 10 and 21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Tsuji* and *Kikuchi* in view of Applicant Admitted Prior Art (AAPA).

Applicants traverse the Examiner's rejection for obviousness on the grounds that the references – either individually or in combination – fail to teach or suggest each and every element of the rejected claims.

¹ Support for the amendments can be found at least in paragraphs [0041]-[0043].

Claim 1 is directed to a method for estimating a charge/discharge electricity amount of a secondary battery and has been amended to clarify that a no-load voltage is calculated as a voltage intercept at a current of zero when specific selection conditions are satisfied. Specifically, claim 1 recites that the specific selection conditions include "(i) the current in charging and discharging the secondary battery is within a first predetermined range, (ii) a number the plurality of pairs of data greater than or equal to a predetermined number, and (iii) a charge/discharge electricity amount during collection of the plurality of pairs of data is within a second predetermined range."

When specific selection conditions are not satisfied and one of specific current conditions and voltage conditions continue to be met for a certain amount of time, claim 1 has been amended to clarify that an open circuit voltage is calculated from the terminal voltage of the secondary battery, "the component resistance of the secondary battery and an average current."

These elements of claim 1, among others, are not taught or suggested by *Tsuji*. *Tsuji* does not disclose calculating a no-load voltage when the specific selection conditions recited in claim 1 are satisfied. Rather, *Tsuji* discloses correcting an initial battery characteristic by the temperature correction factor α calculated based on the temperature of the battery and the deterioration correction factors γ , β calculated based on battery deterioration and calculating the residual capacity based on the corrected battery characteristic, a real time discharge current I during discharge, and a terminal voltage V . See e.g., equations 10 and 12. The deterioration correction factors fail to teach or suggest the specific selection conditions recited in claim 1.

In claim 1, an estimated charge/discharge electricity amount can be calculated from the calculated voltage (no-load voltage or open circuit voltage) that is not greatly affected by current measurement error. As a result, it is possible to estimate a polarization voltage and state of charge that do not depend on the current measurement error. *Tsuji* does not teach or suggest this aspect, among others of claim 1. As illustrated above, the correction factors are dependent on the corrected battery characteristic, a real time discharge current I during discharge, and a terminal voltage V .

Kikuchi and *AAPA* have not been shown to remedy the deficiencies of *Tsuji*. Accordingly, Applicants respectfully submit that claim 1 is patentable over the cited art.

The independent claims 10-12, and 21-22 have at least some generally similar elements and are patentable for at least the same reasons. The dependent claims are patentable for at least the same reasons.

Allowed Subject Matter

The Examiner has indicated that claims 2 and 13 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants thank the Examiner for the careful review and indication of allowability. Because claims 1 and 12 are allowable for the reasons discussed herein, claims 2 and 13 are also in condition for allowance.

Conclusion

In view of the foregoing, Applicants believe the claims as amended are in allowable form. In the event that the Examiner finds remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, or which may be overcome by an Examiner's Amendment, the Examiner is requested to contact the undersigned attorney.

Dated March 5, 2009.

Respectfully submitted,

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